



# Corrigendum: Pacemaking Property of RVLM Presympathetic Neurons

Daniela Accorsi-Mendonça, Melina P. da Silva, George M. P. R. Souza, Ludmila Lima-Silveira, Marlusa Karlen-Amarante, Mateus R. Amorim, Carlos E. L. Almado, Davi J. A. Moraes and Benedito H. Machado\*

Department of Physiology, School of Medicine of Ribeirão Preto, University of São Paulo, São Paulo, Brazil

**Keywords:** neurogenic hypertension, sympathetic activity, presympathetic neurons

## A corrigendum on

### Pacemaking Property of RVLM Presympathetic Neurons

by Accorsi-Mendonça, D., da Silva, M. P., Souza, G. M. P. R., Lima-Silveira, L., Karlen-Amarante, M., Amorim, M. R., et al. (2016). *Front. Physiol.* 7:424. doi: 10.3389/fphys.2016.00424

## OPEN ACCESS

### Edited and reviewed by:

Valdir Andrade Braga,  
Federal University of Paraíba, Brazil

### \*Correspondence:

Benedito H. Machado  
bhmachad@fmrp.usp.br

### Specialty section:

This article was submitted to  
Integrative Physiology,  
a section of the journal  
*Frontiers in Physiology*

**Received:** 09 November 2016

**Accepted:** 10 November 2016

**Published:** 23 November 2016

### Citation:

Accorsi-Mendonça D, da Silva MP, Souza GMPR, Lima-Silveira L, Karlen-Amarante M, Amorim MR, Almado CEL, Moraes DJA and Machado BH (2016) Corrigendum: Pacemaking Property of RVLM Presympathetic Neurons. *Front. Physiol.* 7:575. doi: 10.3389/fphys.2016.00575

Due to an oversight, the authors did not properly cite two important publications by Roger A. Dampney. In section “RVLM and sympathetic outflow,” the second paragraph should read as follows:

Additional evidence about the relevance of RVLM in the maintenance of baseline arterial pressure was provided in a study by Guertzenstein and Silver (1974), in which they demonstrated that bilateral inhibition of specific areas in the ventral medulla, using inhibitory amino acid glycine, produced a large fall in the arterial blood pressure, similar to that described by Dittmar after medullo-spinal transections. Equally important were the contributions by Dampney (1981) and Dampney et al. (1982), which original studies documented that microinjections of L-glutamate into the ventral medulla increased arterial pressure in anesthetized rabbits. The role of RVLM in controlling the cardiovascular function was also described in a study by Granata et al. (1983), which reinforced the concept of a key region in the medullary surface for the maintenance of arterial blood pressure. Moreover, RVLM activation by either electrical stimulation or application of excitatory amino acid (glutamate) or even RVLM disinhibition by application of GABA receptor antagonist (bicuculline), in anesthetized or conscious animals, elicited an increase in sympathetic activity and arterial blood pressure (Willette et al., 1983; Reis et al., 1984; Ross et al., 1984a; de Paula and Machado, 2000; Sakima et al., 2000; Moraes et al., 2011), while bilateral electrolytic lesions, microinjection of GABA or administration of tetrodotoxin, leads to a large fall in the arterial pressure to levels comparable to those observed after transection below brainstem (Dampney and Moon, 1980; Willette et al., 1983; Reis et al., 1984; Benarroch et al., 1986).

The authors apologize for this oversight. This error does not affect the scientific conclusions of this article in any way.

## REFERENCES

- Benarroch, E. E., Granata, A. R., Ruggiero, D. A., Park, D. H., and Reis, D. J. (1986). Neurons of C1 area mediate cardiovascular responses initiated from ventral medullary surface. *Am. J. Physiol.* 250(5 Pt 2), R932–R945.
- Dampney, R. A. (1981). Brain stem mechanisms in the control of arterial pressure. *Clin. Exp. Hypertens.* 3, 379–391.
- Dampney, R. A., Goodchild, A. K., Robertson, L. G., and Montgomery, W. (1982). Role of ventrolateral medulla in vasomotor regulation: a correlative anatomical and physiological study. *Brain Res.* 249, 223–235.
- Dampney, R. A., and Moon, E. A. (1980). Role of ventrolateral medulla in vasomotor response to cerebral ischemia. *Am. J. Physiol.* 239, H349–H358.
- de Paula, P. M., and Machado, B. H. (2000). Changes in regional vascular resistance in response to microinjection of L-glutamate into different antero-posterior coordinates of the RVLM in awake rats. *Auton. Neurosci.* 82, 137–145. doi: 10.1016/S0165-1838(00)00104-1
- Granata, A. R., Ruggiero, D. A., Park, D. H., Joh, T. H., and Reis, D. J. (1983). Lesions of epinephrine neurons in the rostral ventrolateral medulla abolish the vasodepressor components of baroreflex and cardiopulmonary reflex. *Hypertension* 5(6 Pt 3), V80–V84. doi: 10.1161/01.HYP.5.6\_Pt\_3.V80
- Guertzenstein, P. G., and Silver, A. (1974). Fall in blood pressure produced from discrete regions of the ventral surface of the medulla by glycine and lesions. *J. Physiol.* 242, 489–503. doi: 10.1113/jphysiol.1974.sp010719
- Moraes, D. J., Bonagamba, L. G., Zoccal, D. B., and Machado, B. H. (2011). Modulation of respiratory responses to chemoreflex activation by L-glutamate and ATP in the rostral ventrolateral medulla of awake rats. *Am. J. Physiol. Regul. Integr. Comp. Physiol.* 300, R1476–R1486. doi: 10.1152/ajpregu.00825.2010
- Reis, D. J., Ross, C. A., Ruggiero, D. A., Granata, A. R., and Joh, T. H. (1984). Role of adrenaline neurons of ventrolateral medulla (the C1 group) in the tonic and phasic control of arterial pressure. *Clin. Exp. Hypertens.* 6, 221–241. doi: 10.3109/10641968409062562
- Ross, C. A., Ruggiero, D. A., Joh, T. H., Park, D. H., and Reis, D. J. (1984a). Rostral ventrolateral medulla: selective projections to the thoracic autonomic cell column from the region containing C1 adrenaline neurons. *J. Comp. Neurol.* 228, 168–185. doi: 10.1002/cne.902280204
- Sakima, A., Yamazato, M., Sesoko, S., Muratani, H., and Fukiyama, K. (2000). Cardiovascular and sympathetic effects of L-glutamate and glycine injected into the rostral ventrolateral medulla of conscious rats. *Hypertens. Res.* 23, 633–641. doi: 10.1291/hypres.23.633
- Willette, R. N., Barcas, P. P., Krieger, A. J., and Sapru, H. N. (1983). Vasopressor and depressor areas in the rat medulla. Identification by microinjection of L-glutamate. *Neuropharmacology* 22, 1071–1079. doi: 10.1016/0028-3908(83)90027-8

**Conflict of Interest Statement:** The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Copyright © 2016 Accorsi-Mendonça, da Silva, Souza, Lima-Silveira, Karlen-Amarante, Amorim, Almado, Moraes and Machado. This is an open-access article distributed under the terms of the Creative Commons Attribution License (CC BY). The use, distribution or reproduction in other forums is permitted, provided the original author(s) or licensor are credited and that the original publication in this journal is cited, in accordance with accepted academic practice. No use, distribution or reproduction is permitted which does not comply with these terms.